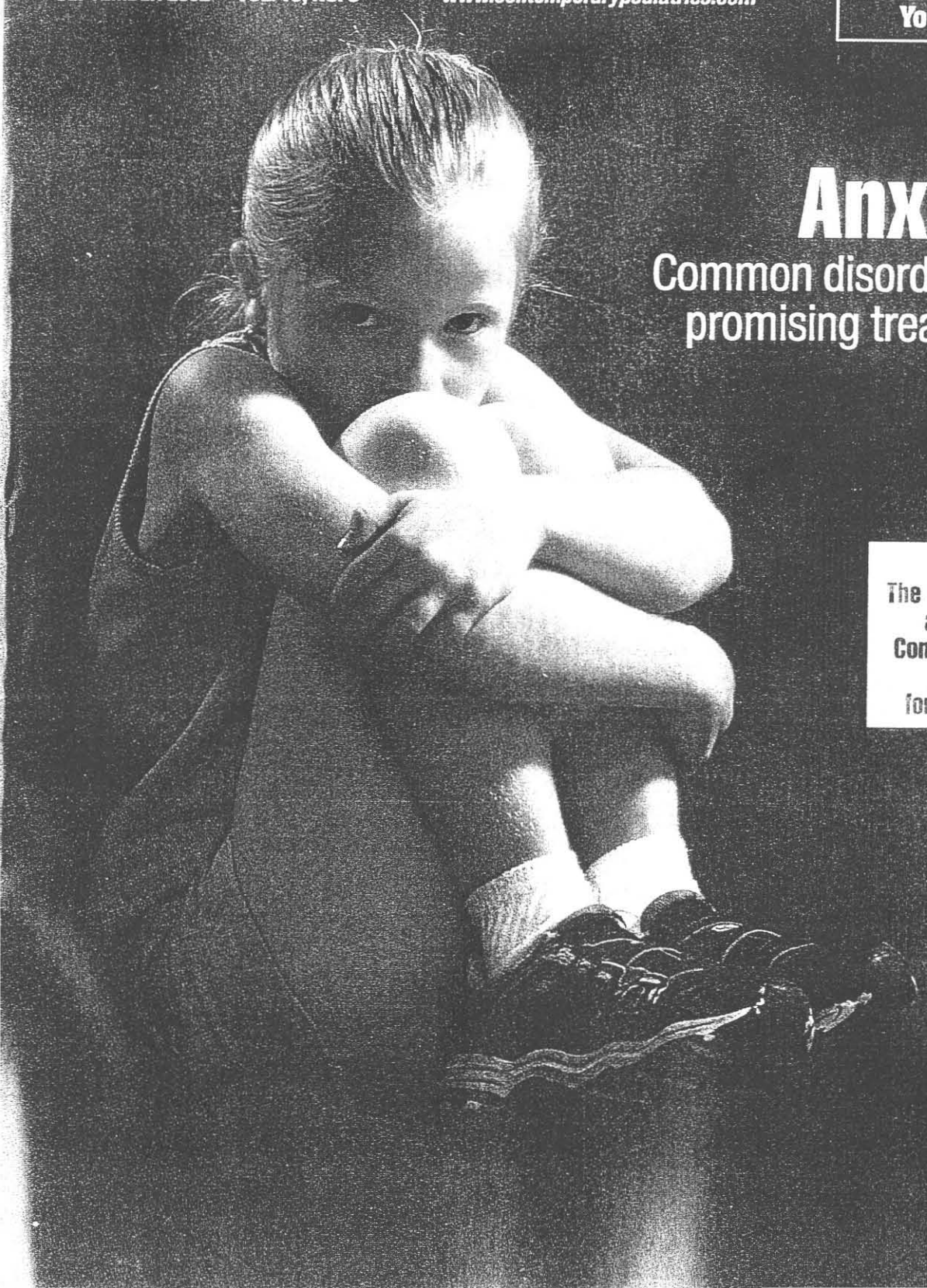
Contemporary
PEDIATRICS®

SEPTEMBER 2002 ■ VOL. 19, NO. 9 www.contemporarypediatrics.com

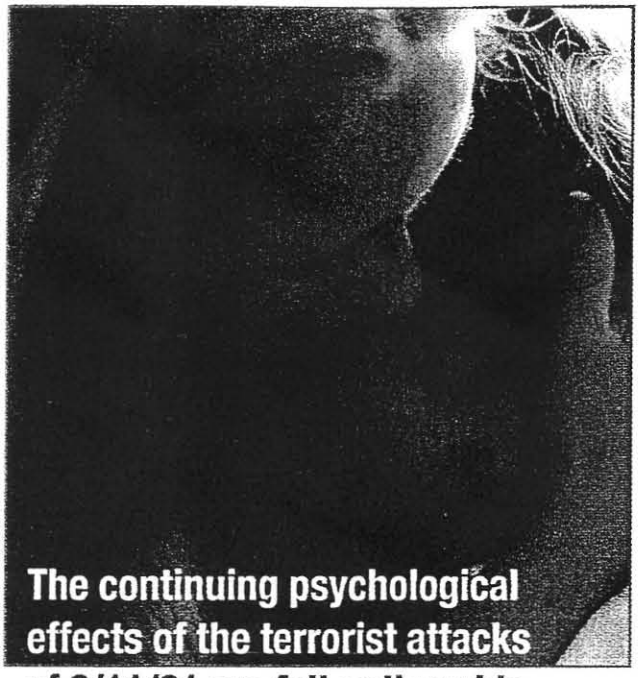


Anxiety

Common disorders and promising treatments

Free CME available online

Also
The 9/11 terror attacks: Consequences persist for children



SUZA SCALORA/PhotoDisc

The continuing psychological effects of the terrorist attacks of 9/11/01 are felt nationwide. Pediatricians can be an important source of credible, clear information and advice for parents, and can help distinguish typical reactions from those that may require further assessment. A brief checklist is included to help you screen children for mental health referral.

The 9/11 terror attacks: Emotional consequences persist for children and their families

By Irwin Redlener, MD, and Roy Grant, MA

The terror attacks of Sept. 11, 2001, on the World Trade Center in New York City and the Pentagon in Washington, D.C., are unique in American history. The magnitude of the attack in New York, in terms of loss of life and property, was enormous. The destroyed twin towers of the World Trade Center had a total of 10 million square feet of rentable office space with capacity for 50,000 occupants. Five other buildings in the Trade Center complex, a church, a 22-story hotel, and a 54-story office building also were either destroyed or seriously damaged.[1,2] Reports of the death toll are conflicting. The New York City Department of Health reports 2,617 deaths based on death certificates issued through Jan. 25, 2002[3]; others estimate the total exceeds 3,000.[4] Furthermore, the actual attacks, including the moment of the second plane crashing into the World Trade Center, were shown repeatedly by nearly every television station in the country over the next several days.

The Children's Health Fund (CHF), whose headquarters are in New York City and whose flagship mobile-based primary care programs are operated in partnership with the Children's Hospital at Monte-

DR. REDLENER is president, The Children's Hospital at Montefiore, and professor of pediatrics, Albert Einstein College of Medicine, Bronx, N.Y. He is a member of the Task Force on Terrorism, American Academy of Pediatrics.

MR. GRANT is director of research, The Children's Health Fund, New York, N.Y.

fiore, Bronx, N.Y., assisted in relief efforts from the first hours after the attack. Despite high expectations of physical casualties, including a possible inordinate impact on children, the number of survivors needing medical attention was minimal. Essentially no immediate pediatric injuries were identified.

On the other hand, it was clear that many children who witnessed any aspect of the terrorist attack, either directly or via the media, showed evidence of behavioral or psychological reactions to the events of 9/11 and the subsequent scare involving dissemination of anthrax spores through the mail. To determine the nature, extent, and distribution of the impact of these events on children and families in New York City, CHF commissioned a series of polls from the Marist Institute. The first poll was conducted between October 2 and October 4, three weeks after the attack. The second poll was completed on November 1 (coincident with the first reports of anthrax cases), and the third poll was completed on March 4, 2002, six months after the terror attacks. Each poll surveyed more than 400 randomly selected New York City parents of children between 4 and 18 years of age.

It was clear from the earliest poll data that the majority of New York City children had strong reactions to the events of 9/11. More than half (52%) of parents reported that their children had become more concerned about their own safety and that of family members. The same percent feared an additional attack; their fears were realized several weeks later with the initial media reports of anthrax. Concern about safety spiked to 60% in response to the anthrax reports and stabilized at 52% on the third poll.

The polls also asked questions focused on specific signs and symptoms suggestive of emotional disturbance, including markers of risk for posttraumatic stress disorder. Between the first and third polls, parental reports of crying and sadness suggestive of depression, sleep disturbance, and school refusal declined. "Clinginess" (a marker for regression) increased from 34% to 37%, and somatic complaints increased from 15% to 19% (see figure, page 46).

Because of the nature and circumstances of the polls, no baseline data exist. However, the questions were asked in such a way as to incorporate a de facto general baseline into the parents' reports, with the responses indicating change since September 11.

Especially striking is the uniformity of the responses to the three polls, which show minimal variation by borough of residence, age, and income. The exceptions are that children of lower income families were more likely to have school-related problems including school refusal, and children in the city's poorest borough, the Bronx, had the highest degree of concern about safety (62% on the six-month poll). Demographically, the Bronx is 48% Hispanic, 36% African-American, and 15% white. The median household income is $24,031 with 42% of children living in poverty.[5] The greater impact on children in high-risk communities is consistent with trauma literature, which notes that previous life experiences, such as exposure to violence and other traumatic events, and social support may mediate the outcome of exposure to a traumatic event.[6]

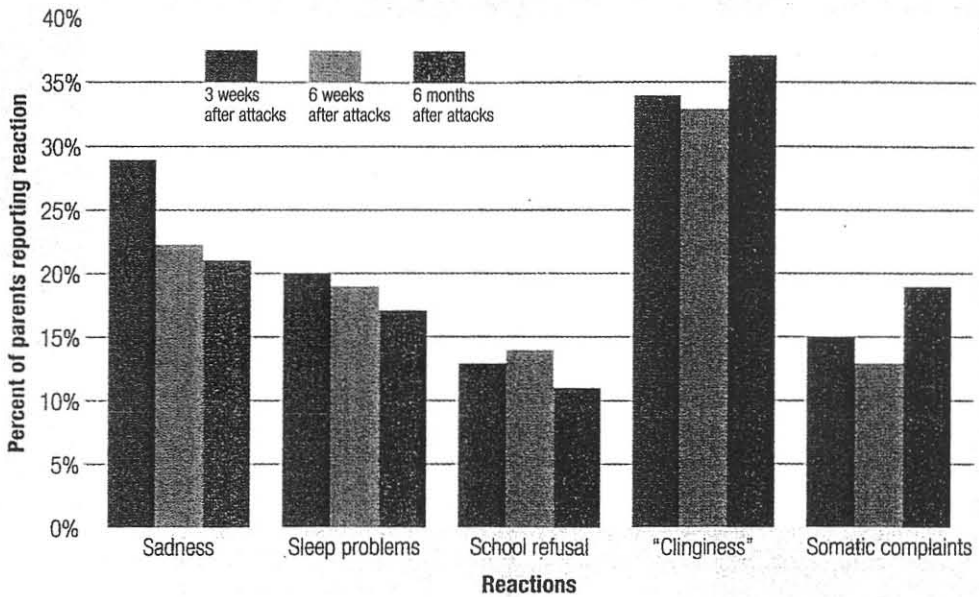
On the third CHF–Marist poll, when asked about potential sources of community support, families reported that they looked primarily to schools for help (70%), yet only 29% said that they received help from school programs. Although 30% of families wanted formal mental health assistance, only 8% received treatment. Only 3% of parents reported that they received support from their child's pediatrician or other health professional. The data also suggest, however, that parents did not seek help specifically from this source.

What other studies have found

A May 2002 report to the New York City Board of Education presented the results of a direct poll of 8,266 students in grades 4 through 12 who completed surveys.[7] The investigators found that the majority of children were affected by the terror attacks of September 11; that the responses were not limited to children in the immediate geographic area of the attacks; and that racial and ethnic minorities—particularly Hispanics—were at higher risk of being affected.

Although these data are consistent with the findings of the CHF–

Children's reactions to the Sept. 11, 2001, terror attacks, reported by more than 400 randomly selected New York City parents of children between 4 and 18 years of age in three polls conducted three weeks, six weeks, and six months after those attacks. Each survey polled a different but comparable set of 400 parents.



Marist polls, we disagree with the conclusions the investigators draw from the data—for example, that "one out of every four NYC public school children [27%] meets criteria for one or more . . . probable psychiatric disorders" (major depression, posttraumatic stress disorder, agoraphobia).[7] Even with the caveat that these are "probable" psychiatric diagnoses, we believe that inferring clinical pathology from the self-report of children filling out a survey in their classroom seems unwarranted. We emphasize that responses "consistent with" these disorders may be typical reactions to a profoundly atypical event.

The CHF–Marist poll findings are also consistent with a national survey of a random sample of 560 adults done several days after September 11, which found pervasive symptoms of stress (disturbing memories, difficulty concentrating, sleep problems, irritability). We agree that clinicians should be prepared to help children and adults deal with their reaction to 9/11 regardless of proximity to the World Trade Center collapse.[8] Another survey, consisting of phone interviews with 1,008 randomly chosen adults between Oct. 16 and Nov. 15, 2001, was geographically limited to Manhattan below 110th Street. The responses suggested posttraumatic stress disorder in 20% of adults living near the World Trade Center site, again with a greater risk for Hispanics.[9]

Although the events of September 11 were unique, previous incidents of terrorism have also been studied, albeit not extensively. In a small study of the impact of the 1993 World Trade Center bombing, investigators found a greater degree of stress among children directly involved than among those whose primary source of exposure was media coverage. The latter did show mild stress symptoms on a standard measure.[10]

The findings of the CHF–Marist Institute polls regarding September 11 are consistent with studies of the most notorious previous incident of domestic terrorism, the 1995 Oklahoma City bombing. Significant reactions among children were not limited by geographic proximity and persisted for years after the event. A probable factor was media exposure.[11,12] Media coverage was even more intense after the Trade Center and Pentagon attacks than in the aftermath of the Oklahoma City bombing, with 24-hour cable news services covering the September 11 incidents incessantly.[13]

Children's reactions to 9/11
A brief screening tool

Since the events of Sept. 11, 2001, many children and adolescents have exhibited one or more of the following signs and symptoms of posttraumatic stress. Although not all affected youth require treatment, consider referral to a mental health professional if a child or adolescent is experiencing several symptoms, or if academic or social functioning is impaired.

For children 71 months of age and younger

- ☐ Separation anxiety
- ☐ Psychomotor agitation
- ☐ Regressive behaviors (thumb-sucking, bedwetting, fear of darkness)
- ☐ Persistent and repetitive trauma-related play
- ☐ Irritability and low frustration tolerance
- ☐ Disruptive or aggressive behavior
- ☐ Nightmares, sleep problems

For children 6 to 11 years of age

- ☐ Regressive behaviors
- ☐ Irritability and low frustration tolerance
- ☐ Disruptive or aggressive behavior
- ☐ Problems with peers
- ☐ Nightmares, sleep problems
- ☐ Extreme withdrawal
- ☐ Extreme fearfulness
- ☐ Inability to concentrate
- ☐ Refusal to attend school
- ☐ Academic decline
- ☐ Physical complaints (headaches, stomachaches without a medical basis)
- ☐ Sadness, feeling hopeless about the future
- ☐ Emotional numbing or flatness

For adolescents 12 to 17 years of age

- ☐ Nightmares, sleep problems
- ☐ Withdrawal and isolation
- ☐ Inability to concentrate
- ☐ School avoidance
- ☐ Academic decline
- ☐ Physical complaints without a medical basis
- ☐ Sadness, feeling hopeless about the future
- ☐ Suicidal thoughts
- ☐ Emotional numbing or flatness
- ☐ Flashbacks
- ☐ Avoidance of reminders of the traumatic event
- ☐ First-time or increased use of alcohol or drugs
- ☐ Problems with peers
- ☐ Antisocial behavior

Sources: NIH Pub. No. 01-3518, Helping Children and Adolescents Cope with Violence and Disasters[18]; Hamblin J[20]; American Psychiatric Association, DSM-IV criteria for posttraumatic stress disorder[21]

Prepared by: The Children's Health Fund Crisis Response Program, New York, N.Y.

MEL CURTIS/PhotoDisc

Encourage parents to talk with their children about a specific plan that includes things to do in case of a terrorist act.

At the Pediatric Academic Societies conference in May 2002, researchers presented evidence of 9/11–related problems among children from Massachusetts[14] and North Carolina.[15] A published report from as far away as Italy documents the impact of 9/11 on subjective health status as measured by a survey using a standardized instrument.[16]

How pediatricians can help

It is clear that, at a time of significant crisis, many children and families would benefit greatly from credible, clear information and advice. Primary care providers, teachers, day-care workers, and others can offer crucial support to families whose children show evidence of crisis-related stress. Providing such support, and identifying situations requiring more intense diagnosis or intervention, are among the invaluable roles pediatricians can play.

Provide objective information. Pediatricians need to become independently informed so they can help parents make decisions that may have a profound impact on their health and that of their family. Independent reports of the air quality in lower Manhattan after 9/11 strongly suggest that federal and local reports understated both the presence of hazardous materials in the air resulting from the World Trade Center collapse and the risk they pose.[17] Important transitions, such as the reopening of schools near the World Trade Center site, were complicated by the poor quality of available information. Pediatricians can also play a role in emergency preparedness in schools by helping to formulate emergency plans, including drills to help children and school officials prepare for a possible incident.

Academic medical centers can offer a wide range of opportunities for primary care physicians to learn about the medical and psychological impacts of terrorism. Efforts should be made to invite pediatricians in private practice and at federally qualified community health centers to relevant educational presentations.

Ask about 9/11 and other issues related to terrorism. The reactions of young children are likely to be highly influenced by the degree to which parents manifest changes in routine or mood.[18] Pediatricians should ask parents about their child's awareness of previous or potential future terror attacks, their degree of exposure (including television) to these issues, and their previous and current reactions. Such queries may provide an opportunity to advise parents about how best to discuss terror attacks with the child.

We recommend that pediatricians encourage parents to present information to children honestly, using language appropriate to the child's developmental level and cognitive abilities. Parents can be encouraged to talk with their children about a specific plan that includes things to do in case of a terrorist incident: to whom to go for help, safe places to seek, and other concrete steps that can be taken at home, school, and in the community. The approach may be similar to that taken to prepare children for other potential threats, such as fire or approach by a stranger. The goal of these discussions should be to help the child feel potentially in control of a threatening situation and also to convey that the parents are in control, with specific plans to ensure safety.

Respond to minor health complaints. Data from the third CHF–Marist poll (March 2002) show that nearly one in five children in New York City developed new somatic complaints subsequent to 9/11. For children who lived near the attack site in lower Manhattan or in any location where exposure to products of combustion or potentially hazardous debris from the site may have been significant, it was important to rule out organic causes of abdominal pain, respiratory complaints, headaches, and the like. For other children, somatic complaints may have been related to anxiety or other concerns arising from 9/11. Many such com-

plaints may be vague and mild, and perhaps insufficient to prompt an appointment to see a pediatrician under routine circumstances.

We recommend that pediatricians and parents take minor physical complaints (such as stomachaches and headaches) more seriously following a terrorist act. An appointment should be made to assess the child and family response to the situation, not only to evaluate the physical complaint but to provide reassurance and guidance if needed. This can also be an opportunity to assess the child's emotional status and ability to manage the stress induced by the new situation.

We recommend that pediatricians and parents take minor physical complaints (such as stomachaches and headaches) more seriously after a terrorist attack. An appointment should be made not only to evaluate the complaint but to provide reassurance and guidance if needed.

Provide anticipatory guidance. Children's reactions to traumatic stress are not well documented in the professional literature, and, before 9/11, information was not readily available to help parents understand their child's reactions or offer specific support. For this reason, The CHF Crisis Response Team, which provided ongoing counseling and support after 9/11, expected that parents would bring up more concerns about their child's reaction or ask about how to discuss the events with their children. It emerged that many parents did not readily recognize signs of emotional distress or relate them to the events of 9/11. Pediatricians can help sensitize parents to possible child reactions to stress and trauma and in so doing inform them about typical and atypical patterns of child development. Such assistance and intervention are indicated not only in New York City but nationwide because instantaneous mass communication made images and reporting of the terror attacks, and their consequences, ubiquitous.

Identify red flags. Pediatricians must distinguish developmentally and situationally appropriate fears and concerns from reactions to a terrorist act.[19] The events of September 11, for example, coincided with the start of a new school year. Some degree of anxiety and vigilance about a possible new attack is to be expected given the warnings and color coded alerts issued virtually daily by the federal government. In this regard, 9/11 differs from the Oklahoma City attack.

Neither parent nor pediatrician should "pathologize" behavior that does not interfere with the child's development or daily functioning or cause significant discomfort. Many children, however, will require professional intervention to help them deal with the terrorist attacks. The one-page checklist on page 49 is designed to facilitate office-based screening for mental health service needs.[20,21]

Promote outreach to vulnerable populations. To the extent that it is possible, efforts should be made to reach medically underserved and other high-risk families including those in homeless and domestic violence shelters, for whom the events of 9/11 may exacerbate a pervasive sense of danger and evoke previous experiences of trauma and violence. Too often, scarce resources are allocated in ways that exclude the most vulnerable children and families. The CHF–Marist Institute poll data consistently show higher levels of concern in the Bronx than in the more affluent boroughs of New York City. The populations of the Bronx and Manhattan are roughly similar (1.3 million and 1.5 million, respectively). The median household income in Manhattan, however, is 1.6 times

higher,[22] and Manhattan has three times as many mental health resources available to help with the events of 9/11.[23]

Limited capacity for mental health referrals is a widespread problem, but it disproportionately affects children in lower income communities, where the risk of psychiatric morbidity is higher.[24] Pediatricians should act as advocates to ensure that vulnerable populations receive needed services.

Maintain psychological preparedness for another terror attack. Although much attention has been paid—appropriately—to preparing for the potential threat of bioterrorism (availability of vaccines, pediatric hospital readiness protocols), it is also necessary to maintain readiness for the psychological impact of terrorism. Safeguarding children requires well-informed parents, school officials, community leaders, and pediatricians and other primary care providers. They must be able to differentiate typical stress reactions from atypical responses that suggest a need for intervention. This in turn requires a knowledge of typical and atypical developmental patterns.

In assessing the potential service needs of an individual child, it is necessary to know the child's current and historical exposure to psychosocial stressors such as relocation and other transitions, maternal depression, separations from major caregivers, and domestic violence. This knowledge can help identify children at higher risk for stress-related reactions after an act of terrorism. Pediatricians are encouraged to differentiate hyperarousal symptoms suggestive of posttraumatic stress from hyperactivity and distractibility that may be associated with attention deficit disorder, since on the surface both conditions may look similar. Finally, to be prepared we must address the fundamental issues of mental health infrastructure—namely inadequate and poorly distributed resources—that were thrown into relief by the events of 9/11.

A special role in an uncertain future

The events of Sept. 11, 2001, and the national anthrax scare have had a considerable impact on the national agenda and, not surprisingly, on many families and children throughout the nation. The attacks were deeply traumatic, and the immediate psychological consequences continue to be exacerbated as the country makes extraordinary preparations for the "permanent potential of terrorism." Renewed concerns have arisen about the vulnerability of nuclear power plants to violent attacks, for example.

Smallpox vaccination recommendations, as a matter of public health policy to counteract the deliberate spread of smallpox by terrorist forces, continue to be debated. The latest federal recommendations call for vaccination of special smallpox investigative teams, selected health-care personnel, and other "first responders," including public safety officials who may be in contact with early victims of a smallpox attack. These recommendations are subject to change on short notice, however, as vaccine supplies increase and as new intelligence information clarifies the level of risk of smallpox exposure faced by the population at large.

Such threats and the understandable need to inform and protect the public have created an entirely unprecedented environment. Even the Cuban missile crisis of the early 1960s and the "brinksmanship" of the nuclear arms race at the height of the Cold War, although they caused high levels of appropriate anxiety in the general population, were distinct from today's situation with regard to terrorism. In the earlier instances, the threat was clear and comprehensible on a certain level. Information from official sources was limited and controlled. No violent images of actual attacks and deadly destruction were prominently—and repeatedly— available.

The new terrorism caught America off guard. It has had a profound effect on most citizens, but children and parents are especially vulnerable to such trauma. Pediatricians and primary care providers have a key role in helping families adapt to new realities. Promoting increased psychological resilience among children and their parents and helping families learn to cope with these new concerns offer crucial opportunities for child health professionals to provide vital support.

There is much more to do. The new threats that face children include obscure, even previously eradicated diseases like smallpox,

Continued on page 59

chemical weapons, and exposure to significant levels of radiation. Pediatricians need to become informed about all of these concerns so that they may advise, screen, intervene, and counsel as needed. Children's hospitals—and the entire public health infrastructure—need to dramatically improve readiness for any major terrorist attack that impacts children.

The legacy of Sept. 11, 2001, is here to stay and will continue to evolve as events unfold. Pediatricians, like everyone else in our society, will need to adapt to new realities. In so doing, they will continue be a key source of calm, credible expertise that children and their families need now more than ever. □

ACKNOWLEDGMENT

The Children's Health Fund Crisis Response Program is funded by Wyeth, Schering-Plough Corporation, MetLife Foundation, Robin Hood Foundation, Union of American Hebrew Congregations, Jewel Heart, and New York Rotary Foundation.

REFERENCES

1. Yamasaki M: World Trade Center. Great Buildings Online. http://www.greatbuildings.com/buildings/World_Trade_Center.html, accessed 5/13/02
2. Wonders of the World Databank Skyscraper: World Trade Center. http://www.pbs.org/wgbh/buildingbig/wonder/structure/world_trade.html, accessed 5/13/02
3. The City of New York, Department of Health and Mental Hygiene: Summary of Vital Statistics 2000. Issued February 2002.
4. *New York Times*, March 22, 2002
5. US Census Bureau: 2000 data: State and County QuickFacts for Bronx County.
6. Paris J: Predispositions, personality traits, and posttraumatic stress disorder. *Harv Rev Psychiatry* 2000; 8(4):175
7. New York City Board of Education: Effects of the World Trade Center Attack on NYC Public School Students: Initial Report to the New York City Board of Education. Applied Research and Consulting, LLC, Columbia University Mailman School of Public Health, and New York State Psychiatric Institute, May 6, 2002. http://www.nycenet.edu/offices/spss/wtc_needs/firstrep.pdf, accessed 5/13/02
8. Schuster MA, Stein BD, Jaycox LH, et al: A national survey of stress reactions after the September 11, 2001 terrorist attacks. *N Engl J Med* 2001;345(20):1507
9. Galea S, Ahern J, Resnick H, et al: Psychological sequelae of the September 11 terrorist attacks in New York City. *N Engl J Med* 2002;346(13):982
10. Koplowitz HS, Vobel JM, Solanto MV, et al: Child and parent response to the 1993 World Trade Center bombing. *J Trauma Stress* 2002;15(1):77
11. Pfefferbaum B, Seale TW, McDonald NB, et al: Posttraumatic stress two years after the Oklahoma City bombing in youths geographically distant from the explosion. *Psychiatry* 2000;63(4):358
12. Pfefferbaum B, Nixon SJ, Tivis RD, et al: Television exposure in children after a terrorist incident. *Psychiatry* 2001;64(3):202
13. Duggal HS, Berezkin G, John V: PTSD and TV viewing of the World Trade Center (letter). *J Am Acad Child Adolesc Psychiatry* 2002;41(5):494
14. Caronna EB, Augustyn M, Zuckerman B: 9/11: Teachers, television, and trauma. Pediatric Academic Societies, May 2002, abstract 137
15. Perrin EM, Murphy ML, Pichichero ME, et al: Behaviors and thoughts in the wake of terror: Parental vs child assessment. Pediatric Academic Societies, May 2002, abstract 113
16. Apolone G, Mosconi P, La Vecchia C: Post-traumatic stress disorder (letter). *N Engl J Med* 2002;346(19): 1495
17. US Congressman Jerrold Nadler: White Paper: Lower Manhattan air quality. Last updated April 12, 2002. http://www.nycosh.org/WTCcatastrophe/EPA%20White%20Paper%20Final%20412.pdf, last accessed August 5, 2002, or http://www.nyenvirolaw.org/PDF/Nadler-3-11-02-EPA-WhitePaper-Final.pdf, last accessed August 5, 2002
18. Fact Sheet: Helping Children and Adolescents Cope with Violence and Disasters. National Institute of Mental Health, Department of Health and Human Services, September 2001, NIH Publication No. 01-3518
19. Muris P, Merckelbach H, Gadet B, et al: Fears, worries, and scary dreams in 4- to 12-year-old children: Their content, developmental pattern, and origins. *J Clin Child Psychol* 2000;29(1):43
20. Hamblen J: PTSD in Children and Adolescents: A National Center for PTSD Fact Sheet. http://www.ncptsdt.org/facts/specific/fs_children.html, accessed 5/13/02
21. *Diagnostic and Statistical Manual of Mental Disorders*, ed 4. Washington D.C., American Psychiatric Association, 1995
22. US Census Bureau: 2000 data: State and County QuickFacts for Bronx County, New York and New York County, New York
23. Project Liberty New York City provider lists for Manhattan and the Bronx. http://www.nycenet.edu/offices/spss/wtc_needs/provlist-m.pdf accessed 5/14/02. (Project Liberty is the mechanism by which New York City is making Federal Emergency Management Administration [FEMA]-funded mental health resources available)
24. Thomas CR, Holzer CE: National distribution of child and adolescent psychiatrists. *J Am Acad Child Adolesc Psychiatry* 1999;38(1):9